

REMARKS

Applicant appreciates the time taken by the Examiner to review Applicant's present application. This application has been carefully reviewed in light of the Official Action mailed November 25, 2008. Applicant respectfully requests reconsideration and favorable action in this case.

Claims Status

Claims 1-27 and 30-63 were rejected. Claims 3-12, 16, 18-20, 23-25, 27-29, 31-32, 34-39, 42-45, 48-49, 51-53, 55, 57-58 and 60-65 are cancelled. Claims 1, 2, 13, 15, 17, 22, 30, 33, 40, 41, 50, 54 and 59 are amended herein. Support for the amendments may be found at least in paragraphs 66-68, 94-96, 113, 172 and 176 of the specification as filed. No new matter is added. Thus, claims 1-2, 13-15, 17, 21-22, 26, 30, 33, 40-41, 46-47, 50, 54, 56 and 59 remain pending.

Interview Summary

An Examiner Interview was conducted on February 23, 2009 between Examiner McAdams, Supervisory Examiner Patel and Agent Kevin Gust. During the interview, the claims and cited references were discussed. Applicant appreciates the time and effort taken by Examiners McAdams and Patel to review Applicant's present application and discuss the pending claims and the cited prior art.

Rejections under 35 U.S.C. § 103

Claims 1-14, 19-20, 22-25, 30-38, 40-45, 47-52, 54-56, 59-60, 62 and 65 were rejected as obvious over U.S. Patent No. 6,985,937 ("Keshav") in view of U.S. Patent No. 5,826,239 ("Du"). The rejection is traversed. Claims 30 and 54 contain similar language. Accordingly, the rejection will be traversed collectively as it pertains to claim 1.

Claim 1, as amended, recites:

A method for regulating resource usage by a plurality of distributed applications running on a plurality of interconnected machines, the method comprising:
receiving an initial resource policy having a set of resource utilization goals;
gathering, by a plurality of interconnected machines, information on the state and health of applications and system resources at each of the machines;
each machine receiving a subset of the total information gathered and a portion of the initial resource policy, wherein the subset of the total information received by each machine corresponds to one or more applications running on that machine;
each machine detecting one or more requests for resources by each of the plurality of distributed applications;

at each of the plurality of interconnected machines, allocating the resources to each of the plurality of distributed applications based on the subset of the total information gathered; determining the resource consumption by the plurality of each application based on its actual usage; periodically exchanging resource information amongst the plurality of interconnected machines, wherein the resource information includes requests for the resources and resource availability at at least one of the plurality of interconnected machines; and at each of the plurality of interconnected machines, adjusting the resources to each of the plurality of distributed applications based upon the periodically exchanged resource information received by that machine.

Thus, embodiments of a method for regulating resource usage by a plurality of distributed applications running on a plurality of interconnected machines may include the steps of receiving an initial resource policy having a set of resource utilization goals, gathering, by a plurality of interconnected machines, information on the state and health of applications and system resources at each of the machines, each machine receiving a subset of the total information gathered and a portion of the initial resource policy, each machine detecting one or more requests for resources by each of the plurality of distributed applications, at each of the plurality of interconnected machines, allocating the resources to each of the plurality of distributed applications based on the subset of the total information gathered, determining the resource consumption by the plurality of each application based on its actual usage, periodically exchanging resource information amongst the plurality of interconnected machines, wherein the resource information includes requests for the resources and resource availability at at least one of the plurality of interconnected machines, and at each of the plurality of interconnected machines, adjusting the resources to each of the plurality of distributed applications based upon the periodically exchanged resource information received by that machine. The subset of the total information received by each machine corresponds to one or more applications running on that machine.

I. Keshav

Keshav describes a dynamic resource configuration module (100) having a virtual server resource monitor (110), a virtual server resource modifier (120), a physical host load balancer (130), a dynamic virtual server mover (140) and a file system (150). (See, Keshav, Figure 1.) The dynamic resource configuration module is coupled to each of the physical host machines (160). The virtual server resource monitor (110), which is located at the dynamic resource configuration module (100) monitors the resource usage of virtual servers (162), which are located at the physical host machines (160) to see if they are overloaded. (See, Keshav, Col. 5, lines 6-8.)

In the rejection, the Examiner states that Keshav discloses a method for regulating resource usage. Applicant respectfully submits that Keshav appears to utilize communication with a centralized host. In contrast, a method for regulating resource usage, as disclosed by Applicant, may receive an initial resource allocation policy and then, one or more machines in a plurality of interconnected machines may gather information about the state and health of resources on the machines, and each machine may receive requests from distributed applications for the resources, allocate resources based on the requests and the initial resource allocation policy, determine the resources actually used by the applications, periodically exchange the information with other interconnected computers, and adjust the allocation of resources. For at least the foregoing reasons, Applicant respectfully submits that the centralized approach described by Keshav fails to teach a distributed system such as disclosed by Applicant. Accordingly, withdrawal of this rejection is requested.

II. Du

Du is directed to a resource management system and method in which the system employs the concept of two-step resource assignment. In Du, a resource is a person, computer process or machine that can be used to accomplish a task. A resource has a name and various attributes defining its characteristics, such as job code, skill set, organization unit and availability. (See, Du, Col. 10, lines 38-41.) A resource group is a group of resources that all can assume a process role. For example, Allen, Bob, Charles and Doug are all software engineers and thus form a resource group that can assume software engineer role. (See, Du, Col. 13, lines 27-31.) Furthermore, the basic idea of two-step resource assignment is to manage resources at two levels: resource groups at the global resource manager (GRM) and individual resources at the local resource manager (LRM). (See, Du, Col. 13, lines 38-41.)

In the rejection, the Examiner states that Du teaches distributed applications running on a plurality of interconnected machines, and that resource information is periodically exchanged amongst the plurality of interconnected machines. Applicant respectfully submits that the two-tiered approach taught by Du adds a second layer to reduce some of the problems encountered in a system such as that taught by Keshav, but still relies on centralized control of the system. Thus, while Keshav teaches a single, centralized point for communication with all the resources, Du teaches an approach in which the central site (the GRM) is checked for availability of resource groups and then selects, at remote sites, specific resources from that group. (See, Du, Figure 8 and Col. 13, lines 12-24.) Furthermore, Du teaches that workflow process activity information, such as resource data and rules, can be stored in a database on a centralized

WFPN server. (See, Du, Col. 6, lines 30-35.) In contrast, embodiments disclosed by Applicant include a plurality of interconnected machines that may receive a set of resource utilization goals such that each machine receives a subset of a resource allocation policy based on the resource utilization goals. Each machine may communicate with other machines to determine the resources available and may receive requests from applications that want to use the resources. Based on the available resources, each machine in the set of interconnected machines may determine an allocation of the resources, periodically communicate with other machines, and then adjust the allocation based on the applications running on the set of machines. In doing so, each machine has enough knowledge of the overall system such that allocating and adjusting the resources of the plurality of machines is handled without requiring a centralized control point (e.g., GRM or LRM) that could form a single point of failure. (See, specification, paragraph 65.)

For at least the foregoing reasons, Applicant respectfully submits that Keshav and Du, alone or in combination, fail to teach or describe a method for regulating resource usage by a plurality of distributed applications running on a plurality of interconnected machines, as recited in claim 1. Accordingly, withdrawal of this rejection is requested.

Claims 15-18, 26-27, 39, 53, and 57-58 were rejected as obvious over Keshav in view Du and further in view of U.S. Patent No. 7,120,685 ("Ullmann"). Applicant respectfully traverses the rejection. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Accordingly, withdrawal of this rejection is requested.

Claims 21, 46 and 61 were rejected as obvious over Keshav in view Du and further in view of U.S. Patent No. 6,298,386 ("Vahalia"). Applicant respectfully traverses the rejection. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Accordingly, withdrawal of this rejection is requested.

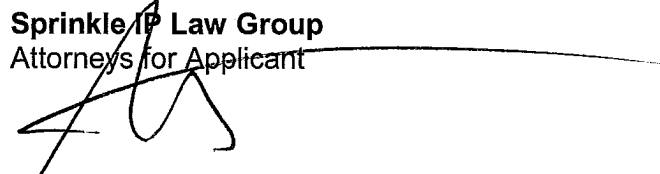
Conclusion

Applicant has now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of Claims 1-2, 13-15, 17, 21-22, 26, 30, 33, 40-41, 46-47, 50, 54, 56 and 59. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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